NOTES ON SOME GENERA OF THE THYMELAEACEAE.

by

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In an attempt to draw up descriptions of the genera of *Thymelaeaceae* for a new edition of the " Genera of South African Plants " an examination of all the specimens in the National Herbarium was undertaken. So far as the genera *Gnidia*, *Lasiosiphon*, and *Arthrosolen* are concerned two courses are open, (1) either to place all the species into one heterogeneous genus *Gnidia* as was done by Gilg in the Pflazenfamilien, and accepted by the late Prof. C. E. Moss (MSS.) or (2) to keep the genera distinct as is done in the " Flora Capensis " and the " Flora of Tropical Africa ". The latter course is, in the opinion of the writer, preferable and reasons for this will be given later. That the three genera are closely related there can be no doubt and some species also indicate an affinity with the genus *Struthiola*. For example, two plants placed in the genus *Gnidia* (*G. aberrans* C.H.W. and *G. anomala* Bolus) have the stamens the same number as the calyx-lobes—a character of *Struthiola*—while the plant described as *Gnidia pulvinata* Bolus has stamens twice as many as the calyx-lobes, but has the stiff hairs surrounding the petals, also a character of *Struthiola*. Species placed in the genus *Lasiosiphon* occasionally have flowers with four calyx-lobes—a character of *Gnidia*—and a specimen of *Arthrosolen polycephalus* (National Herbarium No. 27177) has flowers with 4 calyx-lobes instead of the normal five. *Arthrosolen polycephalus* also occasionally has flowers with obsolete petals (see specimen from Rustenburg in National Herbarium No. 27176). There thus exists some justification for regarding *Gnidia*, *Lasiosiphon*, *Arthrosolen* and perhaps even *Struthiola* as co-generic.

With regard to the genera *Gnidia* and *Lasiosiphon* the conclusions are based on the material in the National Herbarium. The distribution of the genera should not be overlooked ; the species of *Gnidia* are massed at the Cape with some species extending to the high mountain regions of the eastern Transvaal with outliers found at Heidelberg and the Witwatersrand e.g. *Gnidia fastigiata* Rendl. *fide* the " Flora Capensis ". (Note.—Mrs. M. Moss considers this a wrong determination.) This distribution is not at all unusual and is similar to that of many genera of other families. The genus *Lasiosiphon* is massed on the High Veld, though species extend to the Transkei and one species *Lasiosiphon linifolius* Decne is found in the Alexandria district of the Cape Province, but may be distinguished from *Gnidia* by the peduncled heads surrounded by bracts. While their is a certain amount of intermingling of some species of *Gnidia* and *Lasiosiphon*, their areas of concentration are distinct. It should be observed that the names given above are those of the " Flora Capensis ".

Both Wright in the " Flora Capensis " and Pearson in the " Flora of Tropical Africa " rely on the presence or absence of petals to distinguish the genera. This in the writer's opinion is an unstable character and leads to closely related plants being placed in separate genera. For example *Gnidia microcephala* Meisn. and *Arthrosolen polycephalus* C.A. Mey. are obviously closely related species but placed in different genera in the "Flora Capensis" because petals are present in the first and absent in the second. In the genera *Gnidia* and *Lasiosiphon* which normally have petals present, these vary from structures almost as large as the calyx-lobes to much reduced though evident structures. It appears justifiable to assume that in some species the reduction may be complete, as the rudiments in the specimen of *Arthrosolen polycephalus* quoted above indicate. The character which appears to be constant, so far as the writer is able to judge from all the specimens dissected, is the number of stamens. There appears to be only one species (*Gnidia Harveyana* Meisn.) in which the upper stamens are represented by filaments only but this would still warrant keeping the species in the genus *Gnidia*. *Gnidia anomala* Meisn. has no trace of staminodes and the key to the species in the " Flora Capensis " is incorrect to that extent.

The writer comes to the conclusion that the number of stamens and the number of the calyx-lobes, in conjunction with other considerations such as distribution and general similarity, must be taken as characters to separate the genera *Gnidia*, *Lasiosiphon*, *Arthrosolen*, and *Struthiola*. As pointed out above the evidence from the material examined indicates that the number of the stamens in relation to the number of the calyx-lobes is a constant character and should therefore be accepted as the basis for segregation.

Accepting the above conclusion it becomes necessary to describe three new genera for the inclusion of certain species.

The genera *Arthrosolen*, *Gnidia*, and *Lasiosiphon* as described in the " Flora Capensis " must then be amended as follows :—

Arthrosolen C.A. Mey. (emend.) includes the first three species of the " Flora Capensis " together with *Gnidia microcephala* Meisn.

Gnidia Linn. (emend.) as in the " Flora Capensis " with the exclusion of *G. anomala* Meisn., *G. pulvinata* Bolus, *G. aberrans* C.H.W. and the inclusion of species 4 to 11 under *Arthrosolen* in the " Flora Capensis ".

Lasiosiphon Fresn. As in the " Flora Capensis ".

The above regrouping of the genera necessitates some changes in nomenclature as under :—

Arthrosolen ornatus Meisn.	becomes	*Gnidia vesiculosa* E. & Z.
A. spicatus C.A. Mey.	,,	*G. spicata* (L.f.) Gilg
A. fraternus N.E. Br.	,,	*G. fraterna* (N.E.Br.) Phill.
A. laxus C.A. Mey.	,,	*G. laxa* (L.f.) Gilg
A. gymnostachys, C.A. Mey.	,,	*G. gymnostachya* (C.A.Mey.), Gilg
A. variabilis C.H.W.	,,	*G. variabilis* (C.H.W.) Phill.
A. phaeotrichus C.H.W.	,,	*G. phaeotricha* Gilg
A. inconspicuus Meisn.	,,	*G. meisneriana* Phill. comb. nov.
A. deserticola (Gilg) Compton	,,	*Lasiosiphon deserticola* (Gilg) C.H.W.
Gnidia microcephalus Meisn.	,,	*Arthrosolen microcephala* (Meisn.) Phill.
G. anomala Meisn.	,,	*Pseudognidia anomala* (Meisn.) Phill.
G. aberrans C.H.W.	,,	*Basutica aberrans* (C.H.W.), Phill.
G. pulvinata Bolus	,,	*Struthiolopsis pulvinata* (Bolus) Phill.

PSEUDOGNIDIA Phillips gen. nov. Affinis *Gnidia* sed staminibus 4, differt.

Tubus calycis cylindricus, basi articulatus, pilosus ; lobi 4, lanceolati. *Petala* 8, crassa, linearia. *Stamina* 4. *Ovarium* ovatum, glabrum ; stylus filamentosus ; stigma simplex.

Suffrutex sericeus ; folia opposita, elliptica vel oblongo-elliptica ; flores solitarii, axillares.

Cape Province :—Distribution as in " Flora Capensis ", *Drege* 7348a (Typus).

Calyx-tube long cylindric, slightly widened above, sub-globose at the base and articulated above the globose portion, pilose ; lobes 4, lanceolate, much shorter than the tube. *Petals* 8, fleshy, shorter than the calyx-lobes, linear. *Stamens* 4, inserted in the upper part of the calyx-tube ; filaments much shorter than the anthers ; anthers linear, with an apical gland which is soon deciduous. *Ovary* somewhat ovate in outline, 1-chambered, with a single ovule, glabrous ; style inserted laterally, filamentous, about $\frac{3}{4}$ as long as the calyx-tube ; stigma simple, with a few glandular hairs.

Differs from the genus *Gnidia* in having only 4 stamens. The new combination will now be **Pseudognidia anomala** (Meisn.) Phill.=*Gnidia anomala* Meisn.

BASUTICA Phillips gen. nov. Affinis *Gnidia* sed staminibus 4 differt.

Tubus calycis infundibuliformis, pilosus ; lobi 4, oblongo-elliptici. *Petala* 4, crassa, oblonga. *Stamina* 4. *Ovarium* leviter ellipsoideum, supra pilosum ; stylus filamentosus ; stigma simplex.

Suffrutex ; folio alternata, ericoidea ; flores solitarii, axillares.

Eastern Mountain Region :—Basutoland, *Staples* in *National Herbarium* 27178 ; Drakensberg, *Thode* 79 ; Giant's Castle, Drakensberg, *Wylie* 10611 (typus).

Calyx-tube more or less funnel-shaped, pilose ; lobes 4, oblong-elliptic. *Petals* 4, fleshy, shorter than the calyx-lobes, oblong. *Stamens* 4, fixed about $\frac{1}{2}$ way down the calyx-tube ; anthers oblong, longer than the filaments. *Ovary* slightly ellipsoid, 1-chambered, with a single ovule, hairy above ; style filamentous, about $\frac{3}{4}$ as long as the calyx-tube ; stigma simple, minutely hairy.

The genus is separated from *Gnidia* by having only 4 stamens. The new combination will now be **Basutica aberrans** (C.H.W.) Phill.=*Gnidia aberrans* C.H.W.

STRUTHIOLOPSIS Phillips gen. nov. Affinis *Gnidia* sed petalis pluribus differt.

Tubus calycis cylindricus; lobi 4; *Petala* ∝, pilis rigidis cincta. *Stamina* 8, biseriata, inclusa. *Ovarium* ellipticum ; stylus filamentosus ; stigma pilosum.

Suffrutex ; folia alternata, linearia vel lanceolata, pilosa ; flores solitarii, axillares.

Cape Province :—Bredasdorp district, between Caledon and Elim, *Bolus* 9238 (type) ; Koude Rivier, *Schlechter* 9619.

Calyx-tube long cylindric, slightly widened at the base and articulated above the widened portion, pilose ; lobes 4, ovate, much shorter than the tube. *Petals* many, somewhat fleshy, terete, or linear and arising from 4 cushions shorter than the calyx-lobes, surrounded by stiff hairs. *Stamens* 8, in 2 rows ; the upper row sometimes functionless. *Ovary* elliptic, slightly hairy above ; style filamentous, about $\frac{3}{4}$ as long as the calyx-tube ; stigma lanceolate, hairy.

The presence of stiff hairs among the petals connects this genus with *Struthiola* but the stamens being double the number of the calyx-lobes excludes it from *Struthiola*. It differs from *Gnidia* in having many petals. [Type:—**Struthiolopsis pulvinata** (Bolus) Phill.=*Gnidia pulvinata* Bolus.]

Struthiolopsis Bolusii Phill. sp. nov. *Calyx* extra appresse pilosa; lobi 4, ovato-elliptici. *Petala* 3—6-lobata, pilis rigidis cincta. *Stamina* 8, biseriata, inclusa.

Suffrutex; folia lineari-lanceolata, flores solitarii, axillares.

Cape Province:—Caledon distr.: Houw Hoek, *Schlechter* 9402; Hottentots Holland, *Stokoe* in *Herb. Bolus* 22328; Caledon, *Marloth* 13193. Bredasdorp distr.: Bredasdorp, *Bolus* 7871, 8595 (type), *Galpin* 10464, 10506, 11289. Without locality, *Marloth* 8965, 13193.

THE GENUS ENGLERODAPHNE Gilg

The "Flora Capensis" upholds the genus *Englerodaphne* Gilg but places under *Gnidia* a species, *G. ovalifolia* Meisn., which obviously belongs to the genus *Englerodaphne*. Burtt Davy was correct in separating certain specimens quoted in the "Flora Capensis" under *Gnidia ovalifolia* and describing them as *Englerodaphne pilosa*. There appears to be little doubt that all the specimens quoted as *Gnidia ovalifolia* in the "Flora Capensis" do not belong to the same species. The Gueinzius specimen and Pegler No. 166 have the inflorescence in the form of an ebracteate spike and the leaves, except the youngest, are glabrous. Tyson No. 1775 and Flanagan No. 2772 have the flowers in ebracteate heads and the leaves are permanently pilose. As Burtt Davy has put the latter into another genus (*Englerodaphne pilosa*) the former specimens must also be placed in *Englerodaphne* and require to be renamed as *E. ovalifolia* (Meisn.) Phill.=*Gnidia ovalifolia* Meisn. partly. There is no outstanding structural difference in the flower to separate *Englerodaphne* from *Gnidia*, but the two genera need never be confused as *Englerodaphne* has flat membranous leaves very different in texture to any species of *Gnidia* and the inflorescence is ebracteate.

GNIDIA CEPHALOTES Licht. Mss. ex Meisn.

The name *Gnidia cephalotes* is a manuscript name of Lichtenstein's in the Willdenow herbarium, but was accepted by Meisner (DC. Prodr. vol. 14, p. 581) and the species described by him. Meisner l.c. cites two specimens of Zeyher's (Nos. 3743 and 3745) as belonging to the species and in his description he describes the petals (glands) as "glandulis 4 parvulis bifidis ". Through the courtesy of the Acting Director of the South African Museum Herbarium, Cape Town, I was able to examine two Zeyher specimens with the same numbers as above and find they do not agree with the description in the Prodromus ; the petals are four cushions each produced into 3—6 lobes and surrounded by hairs. The Curator of the Bolus Herbarium was good enough to allow me to examine the material named *Gnidia cephalotes* in the Bolus Herbarium. I found two specimens, viz., Esterhuysen No. 3633 and Stokoe No. 8022, which agreed with Meisner's description in having four petals slightly bifid, and these must therefore be taken as true *Gnidia cephalotes*. The remainder of the specimens, viz., Stokoe Nos. 6464, 6465 ; Bolus Herbarium Nos. 17484, 22783 ; Esterhuysen No. 3636 ; Schlechter No. 7219 ; Bolus Nos. 7871, 8595 are the same as Zeyher Nos. 3743 and 3745, and have several petals surrounded by hairs. I have only seen the Zeyher numbers and Schlechter 7219 and Bolus 8595 quoted in the " Flora Capensis " under *Gnidia cephlotes* but, as pointed out above, they do not agree with Meisner's description. Superficially the specimens with four petals and those with several petals look very much alike, but a closer examination, apart from the floral structure, reveals other differences.

Without reference to Willdenow's herbarium, it is impossible to make definite statements, but it is highly probable that the specimen (or specimens) to which Lichtenstein affixed his manuscript name, were not Zeyher's specimens. Meisner notes he saw a dried specimen (or specimens) in Willdenow's herbarium, and probably drew up his description on that material, and by comparison concluded the two Zeyher specimens were the same species. Such a mistake would be quite excusable. We are forced to accept the description given by Meisner as being applicable to the plant seen by Lichtenstein and which he named *Gnidia cephalotes*, and which had only four petals slightly bifid; the other specimens with several petals surrounded by hairs must be excluded. They are allied to the plant named by Bolus *Gnidia pulvinata* but which I consider should be generically separated from *Gnidia* and placed in the genus *Struthiolopsis* Phill.

In the " Flora Capensis " Wright followed Meisn. in accepting the Zeyher specimens as *Gnidia cephalotes* Licht. I have not seen the Mund specimen or Schlechter 9402 so cannot say whether or not they are *G. cephalotes* Licht. All the other specimens quoted by Wright must be excluded.

KEY TO GENERA OF THYMELAEACEAE.

1. Ovary 2-chambered, rarely 3-chambered; inflorescence an umbel. 1. *Peddiea* Harv.
Ovary 1-chambered; inflorescence a head or spike or flowers solitary .. 2
2. Stamens as many as the calyx-lobes .. 3
Stamens twice as many as the calyx-lobes .. 5
3. Petals surrounded by stiff hairs .. 8. *Struthiola* Linn.
Petals not surrounded by hairs .. 4
4. Leaves opposite; petals 8 .. 5. *Pseudognidia* Phill.
Leaves alternate; petals 4 .. 6. *Basutica* Phill.
5. A small tree; inflorescence a peduncled head surrounded by 2—6 bracts forming an involucre .. 13. *Dais* Linn.
Shrubs or shrublets .. 6
6. Inflorescence a head surrounded by coloured membranous, not foliaceous, bracts .. 4. *Arthrosolen* C.A. Mey.
Inflorescence, if a head, surrounded by foliaceous herbaceous bracts .. 7
7. Scales present at the base of the stamens .. 8
Scales absent .. 9
8. Flowers solitary at the apex of the branches or in the axils of the upper leaves .. 10. *Cryptadenia* Meisn.
Inflorescence usually a bracteate or ebracteate head, rarely a short dense spike or flowers solitary .. 11. *Lachnaea* Linn.
9. Petals many, mixed with hairs .. 7. *Struthiolopsis* Phill.
Petals as many or twice as many as the calyx-lobes or none .. 10
10. Calyx-lobes 5, rarely 4; petals as many as the calyx-lobes, rarely none. 3. *Lasiosiphon* Fresn.
Calyx-lobes 4; petals as many, twice as many as the calyx-lobes or none .. 11
11. Stigma mop-like; leaves not membranous .. 12. *Passerina* Linn.
Stigma simple, if sub-globose then leaves membranous .. 12
12. Leaves not membranous; inflorescence usually bracteate. 2. *Gnidia* Linn.
Leaves membranous; inflorescence ebracteate 9. *Englerodaphne* Gilg